

CHAPTER 3

MISHAP AND INJURY CLASSIFICATION

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This chapter describes how to classify naval aviation mishaps and injuries.

301. GENERAL

Aircraft mishap classification is a complex process. Initial reports of an aircraft mishap will be both muddled and confused. The earliest information will be limited and incomplete and require guesses from the reporting custodian as to the extent of damage and injury. Knowing this, the reporting system provides ample opportunity to correct initial estimates. The mishap severity class (A, B, C) together with the mishap category (flight mishap (FM), flight-related mishap (FRM), or aircraft ground mishap (AGM)) constitute the mishap classification such as, "Class B Flight Mishap" or "Class A Aviation Ground Mishap." If you suspect an naval aviation mishap has occurred:

a. Check paragraphs 302 and 303 which define naval aircraft and UAVs and list the exceptions to those definitions. If naval aircraft or UAVs are not involved, there is no need to

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report under provisions of this instruction. OPNAVINST 5102.1C, OPNAVINST 5100.19D (NOTAL) OPNAVINST 5100.23E or MCO 5101.8 describe other reporting requirements which may apply in that case. If a naval aircraft or UAV is involved, continue this checklist.

b. Read paragraphs 304 and 305 which define naval aviation mishaps and exceptions. If no defined naval aviation mishap has occurred, there is no need to report the under provisions of this chapter. However, see chapter 4 for hazard reporting. If a naval aviation mishap has occurred, continue with this checklist.

c. Determine the aviation mishap category: FM, FRM, or AGM. Paragraph 312 describes these categories. They are diagrammed in appendix 3A. You'll need to answer the following questions to determine the mishap category:

(1) Did intent for flight, as described in paragraph 306, exist for the aircraft or UAV involved in the mishap?

(2) Did the damage to the aircraft or UAV involved exceed the \$20,000 mishap threshold?

d. Paragraph 313 and the diagram in Appendix 3B define the severity classifications. For mishaps which require summing costs of property damage see paragraph 314.

302. NAVAL AIRCRAFT AND UAV DEFINED

The term "naval aircraft or UAV" refers to those aircraft and UAVs of the U.S. Navy, U.S. Naval Reserve, U.S. Marine Corps, and U.S. Marine Corps Reserve for which the naval aircraft accounting system requires accountability. Included in this definition are all manned, weight-carrying, devices supported in flight by buoyancy or dynamic action, man-rated aircraft when operated remotely as drones with no live operator on board (NOLO), and all UAVs. Only after aircraft have been formally accepted from the manufacturer may they be defined as naval aircraft or UAVs. If the government has assumed ground and flight risk for aircraft bailed to non-naval organizations, those aircraft are naval aircraft or UAVs. In addition, aircraft or UAVs undergoing testing by naval activities, including aircraft or UAVs furnished by a contractor or another government agency, when operated by a naval aircrew in an official status, conducting tests for U.S. Naval use, are naval aircraft. Aircraft leased by the U.S. Navy or U.S. Marine Corps

are naval aircraft or UAVs, if the Navy or Marine Corps has exclusive use of them.

303. EXCEPTIONS TO THE DEFINITION

The following are neither naval aircraft nor UAVs. Mishaps occurring to them are not reportable under the provisions of this instruction, however, CNO may decide to participate in mishap investigations involving them. Conduct JAG Manual Investigations whenever litigation against or by the U.S. Government is expected.

a. Aircraft or UAVs leased or loaned to non-DOD organizations when the lessor or borrower has assumed the risk of loss.

b. Civil aircraft owned by civil operators engaged in contract air missions for the U.S. Navy or U.S. Marine Corps.

c. New production aircraft or UAVs, not formally accepted by the government. Report mishaps which involve such aircraft or UAVs as contractor mishaps. COMNAVAIRSYSCOM shall investigate mishaps involving aircraft or UAVs owned by government contractors in which there is damage to DOD property, or injury to other DOD personnel. Send the record of the mishap investigation to COMNAVSAFECEN for review, recordkeeping, and statistical recording.

d. Unmanned target drone aircraft and ballistic or semiballistic vehicles.

e. Navy Flying Club and skydiving club aircraft. These are reportable under OPNAVINST 1710.2E (NOTAL).

304. NAVAL AVIATION MISHAP DEFINED

a. A naval aviation mishap is an unplanned event or series of events, directly involving naval aircraft or UAVs which result in any of the following:

(1) Damage in the amount of twenty thousand dollars or more to naval aircraft or UAVs, other aircraft (DOD or non-DOD), or property (DOD or non-DOD). Property damage includes costs to repair or replace facilities, equipment or material.

(2) An injury as defined in paragraph 307.

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(3) Damage incurred as a result of salvage efforts do not count as mishap costs on that aircraft or UAV; however, other damage such as corrosion or fire that happen while the aircraft is awaiting salvage must be included.

b. A diagram of naval aviation mishap classifications is in appendix 3C and includes:

(1) Three mishap categories: FM, FRM, and AGM; all defined in paragraph 312.

(2) Three classes of mishap severity: A, B, and C - all defined in paragraph 313 and applicable to each of the mishap categories described above.

305. EXCEPTIONS TO THE NAVAL AVIATION MISHAP DEFINITION

The following are not naval aviation mishaps and are not reportable under this instruction. (See chapter 4 for hazard reporting instructions.)

a. Intentional or expected damage to DOD equipment, property, aircraft, or UAVs, incurred during authorized testing or combat training. Unexpected or unintentional damage to equipment, property, aircraft or UAVs under these circumstances is reportable.

b. Intentional, controlled jettison or release, during flight, of canopies, cargo, doors, drag chutes, hatches, life rafts, auxiliary fuel tanks, missiles, target drones, rockets, conventional munitions, and externally carried equipment not essential to flight, when there is no injury, no reportable damage (\$2000) to the aircraft or other property, and in the case of missiles, drones or munitions, the reason for jettison is not due to a malfunction of the launch or release system. A good test of this exception is to question the intent of the aircrew. You have a reportable incident if the object was accidentally jettisoned or dropped.

c. Malfunction or failure of parts due to normal wear provided: (1) the malfunction or failure is the only damage, and (2) the sole action is to replace or repair the part. This exception does not apply if the cost for damage resulting from the failure of one part exceeds \$2000 to another component. For example: when the failure of a jet turbine inflicts more than \$2000 worth of damage to the aircraft fuselage, a blown tire causes over \$2000 damage to the wheelwell or aircraft structure, or a blown tire FODs an engine you have a reportable incident.

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Internal material failure of an engine in which the damage is confined to the engine itself is not reportable as a mishap. (See OPNAVINST 4790.2G (NOTAL)). Incidents involving damage more than internally indicated engine FOD, or involving injury require both a SIR and an engine FOD incident report.

d. Foreign Object Damage (FOD) to aircraft engines, air-breathing missiles, or drone engines when not caused by aircrew or maintenance personnel action or bird strike. The intent is to avoid safety reports on engine failures and FOD incidents for which there is no known cause and no significant damage to other aircraft components. However, when the engine is damaged by human error (for instance, a tool left in the intake) or material failure of another aircraft part such as a tire failure), a Hazard Report or SIR is the first step in raising awareness and beginning corrective actions. When other components or structures of the aircraft are damaged the \$2000 rule applies.

e. Occupational illness is any abnormal physical condition or disorder, other than one resulting from an injury, caused by repeated exposure (of more than 1 day's duration) to environmental factors associated with the work environment. Report these illnesses per OPNAVINST 5102.1C (NOTAL) or MCO 5101.8 (NOTAL).

f. An injury sustained during a planned aircraft egress (such as parachute jumping or rappelling) if the aircraft or aircrew actions did not contribute to the injury. Send a Hazard Report.

g. Property damage as a result of vandalism, riots, civil disorders, sabotage or felonious acts such as arson.

306. INTENT FOR FLIGHT DEFINED

The following criteria apply to DOD aircraft and UAVs involved in aircraft mishaps. Intent for flight is a prerequisite for the classification of a naval aviation mishap as a FM or FRM.

a. Intent for flight exists when the aircraft or UAV's brakes are released or takeoff power is applied to begin an authorized flight. For catapult takeoffs, flight begins at first motion of the catapult after pilot has signaled readiness for launch. For UAV rocket-assisted takeoff (RATO), flight begins at the first sign of RATO bottle ignition. For UAV pneumatic launches, flight begins at first sign of pneumatic

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launcher motion after the pilot has signaled readiness for launch.

b. Intent for flight continues until:

(1) The aircraft or UAV taxies clear of the runway or landing area.

(2) Helicopter or vertical takeoff and landing (VTOL), flight ends when the aircraft has alighted at the termination of the flight and the landing gear supports the aircraft weight. Touch-and-go or stop-and-go landings are not terminations of flight.

(3) UAV flights end in the net or when captured by another recovery system.

307. INJURY DEFINED

a. A reportable injury is any bodily harm such as a cut, fracture, burn, or poisoning received while involved with naval aircraft or UAVs, so long as these injuries - updated until the final endorsement message has been sent - result from a single or one-day exposure to an external force, toxic substance, or physical agent, and result in a:

(1) Fatality, regardless of the time between injury and death.

(2) Permanent total disability.

(3) Permanent partial disability.

(4) Lost workday injuries - defined as causing the loss of 5 or more workdays (not including the day of injury). An incident is not reportable if the injury results in 4 or less lost workdays and damage to the aircraft or UAV does not exceed \$20,000. A Hazard Report would be appropriate in such cases.

b. Consider only these injuries in determining the severity classification of a naval aviation mishap:

(1) All injuries to active duty, on or off-duty, DOD military personnel (including reservists).

(2) All injuries to on-duty DOD civilian personnel, including Foreign Nationals attached to the DOD.

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(3) Fatal injuries to anyone.

308. DOD PERSONNEL AND NON-DOD PERSONNEL DEFINED

These definitions apply when determining mishap severity. While non-DOD personnel injuries are reported, they shall not be used to determine mishap severity, except that any fatality will result in a Class A mishap.

a. DOD Personnel

(1) Civilian On Duty. General Schedule and Wage Grade employees (including National Guard and reserve technicians, unless in military duty status), nonappropriated fund employees (except military members employed part time), Corps of Engineers Civil Works employees, youth or student assistance program employees, foreign nationals employed by DOD components, and military exchange employees.

(2) Military. All U.S. military personnel on active duty, U.S. Military Reserve or National Guard personnel on active duty or in drill status, service academy cadets, Reserve Officer Training Corps cadets when engaged in directed training activities, foreign national military personnel assigned to DOD components

b. Non-DOD Personnel. Off-duty DOD civilian personnel, persons employed by other Federal agencies, and other civilians and foreign nationals not employed by DOD.

309. DUTY STATUS DEFINED

These definitions are for mishap reporting purposes only and have no relation to compensability or line of duty determination.

a. On Duty. When DOD personnel are:

(1) Physically present at any location to perform their officially assigned work. (This includes those activities incident to normal work activities which occur on DOD installations, such as lunch or coffee breaks and all activities aboard vessels.)

(2) Being transported by DOD or commercial conveyance to perform officially assigned work. (This includes reimbursable travel for temporary duty performed in private motor vehicles, but not routine travel to and from work.)

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(3) Participating in compulsory sports or physical training activities.

b. Off Duty. All other times not defined in paragraph 309
a. above.

310. LOST WORKDAY DEFINED

Lost workdays are those workdays (consecutive or not) on which DOD personnel would have worked, but could not work because of injury. Excluded are the day of the injury and days that personnel did not work even though able to work.

311. INJURY CLASSIFICATION

Injury classifications (defined below) are: fatal injury, permanent total disability, permanent partial disability, lost workday, first aid injury, no injury, lost at sea, missing or unknown.

a. Fatal Injury. An injury which results in death from a mishap or the complications arising therefrom, regardless of the time between the mishap and the death.

b. Permanent Total Disability is any injury which, in the opinion of competent medical authority, permanently incapacitates someone to the extent they cannot pursue gainful employment. In addition, the amputation of, or the loss of use, of both hands, or both feet; or loss of, or blindness in, both eyes, or a combination of any of these injuries as a result of a single mishap constitutes a permanent total disability.

c. Permanent Partial Disability. An injury which does not result in death or permanent total disability, but, in the opinion of competent medical authority, results in permanent impairment or loss of any part of the body, the loss of the great toe, the thumb, or an unrepairable inguinal hernia, with the following exceptions:

- Teeth
- The four smaller toes
- Distal phalanx of any finger
- Distal two phalanges of the little finger
- Repairable hernia
- Hair, skin, nails, or any subcutaneous tissue

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d. Lost Workday Injury. An injury which does not result in death, permanent total disability or permanent partial disability, but results in 1 or more lost workdays, not including the day of injury. Lost workday injuries are further divided into major lost workday injury, (5 or more lost workdays) and minor lost workday injury, (more than one, but less than 5 lost workdays.) Only a major lost workday injury requires a report; however, if a mishap report is submitted as a result of \$20,000 or more aircraft damage, then include all injury classifications.

e. First Aid Injury. An injury with no lost workdays. Used when individuals are treated and released.

f. No injury.

g. Lost at sea.

h. Missing or unknown.

NOTE: Lost at sea and missing or unknown injuries equate to a fatality for mishap severity-level classification. Paragraph 313 defines mishap severity levels.

312. NAVAL AVIATION MISHAP CATEGORIES include:

a. Flight Mishaps (FM). This category encompass those mishaps which result in \$20,000 or more damage to a DOD aircraft or UAV or, the loss of a DOD aircraft or UAV - when intent for flight for DOD aircraft or UAV existed at the time of the mishap. Other property damage, injury or death is irrelevant to this classification.

b. Flight-Related Mishaps (FRM). Those mishaps which result in less than \$20,000 damage to a DOD aircraft or UAV - when intent for flight existed at the time of the mishap and, additionally, \$20,000 or more total DOD and non-DOD damage or a reportable injury or death occurred.

c. Aviation Ground Mishap (AGM). Those mishaps in which the intent for flight did not exist but a DOD aircraft or UAV was lost, or more than \$20,000 damage was sustained by a DOD aircraft or UAV, or DOD or non-DOD property was damaged in the amount of \$20,000 or more, or a reportable injury occurred.

313. NAVAL AVIATION MISHAP SEVERITY CLASSES

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The following mishap severity classes, based on personnel injury and property damage, apply to all three categories of mishaps listed above. To determine mishap costs see paragraph 314.

a. Class A Severity. A Class A mishap is one in which the total cost of damage to property or aircraft or UAVs exceeds \$1,000,000, or a naval aircraft is destroyed or missing, or any fatality or permanent total disability results from the direct involvement of naval aircraft or UAV. Loss of a UAV is not a Class A unless the cost is \$1,000,000 or greater.

b. Class B Severity. A Class B mishap is one in which the total cost of damage to property or aircraft or UAVs is more than \$200,000 but less than \$1,000,000, or a permanent partial disability or the hospitalization of three or more personnel results.

c. Class C Severity. A Class C mishap is one in which the total cost of damage to property or aircraft or UAVs is \$20,000 or more, but less than \$200,000, or an injury requiring five or more lost workdays results.

d. Any occurrence in which the total cost of property or aircraft or UAV damage is less than \$20,000 and there are no reportable injuries is not an aviation mishap. Report these events as hazards. (See Chapter 4.)

314. DETERMINING AIRCRAFT OR UAV MISHAP COSTS

The aviation mishap board calculates aviation mishap costs by totaling the cost of property and aircraft or UAV damage. The Naval Safety Center will add injury costs to the total.

a. DOD Property Costing

(1) The intent of this paragraph is to account for the cost of parts lost or damaged during a mishap. Compute the cost of damage to DOD property using the best known cost of repair or replacement. Base these cost estimates on the price of materials and man-hours necessary to repair the damage. Use figures provided by the cognizant aviation depot. Do not change them. If man-hour cost estimates are not available, use \$60 per depot-level man-hour. For intermediate and organizational level, use \$18 per man-hour for labor costs. Report direct man-hours spent removing and replacing damaged components. Direct man-hours are the cumulative man-hours - expended at any maintenance level - to effect complete repair of the aircraft or UAV and restore it to serviceable condition. Aircraft parts

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which may be damaged and which require removal from the aircraft for intermediate or depot level inspection to ascertain the extent of damage should be reported via MDR if the potential cost exceeds \$20,000. If the inspection shows the damage to be less than \$20,000, send a message downgrading the incident.

(2) When a component (excluding engines) is economically repairable and sent to an intermediate level or higher maintenance facility, and planning and estimate (P&E) information is not available, calculate the cost of repair by computing 15 percent of the item's initial cost - not turn-in cost. Report man-hours spent removing and replacing the damaged part.

(3) Base cost estimates on damaged engines sent to intermediate or higher level maintenance facilities for repair on engine repair cost information from the NAVSAFECEN. If this information is not available, use 17 percent of the original engine cost as your estimate. Report man-hours spent in removing and replacing the engine(s).

(4) Include in your cost estimates the man-hours spent removing undamaged parts to gain access to those that are damaged. Do not report man-hours spent removing or disassembling undamaged parts to gain access to areas where damage is suspected unless damage is found. Count those efforts as direct man-hours if damage is found. Include those man-hours spent in anticorrosive work following salt water immersion, as the result of an aviation mishap. Do not include those man-hours consumed setting up maintenance stands or other support equipment in preparation for the repair effort. It is a violation of the intent of this instruction to remove a damaged assembly and replace it with a new one in an attempt to decrease the number of man-hours spent on repairs and, thereby, lower the mishap classification.

(5) If an aircraft or a UAV is destroyed, the originator of the report need only state that fact in the aircraft or UAV damage section of reports and COMNAVSAFECEN will enter the costs in the appropriate records.

(6) Include in your cost estimates only that damage sustained as a direct result of the mishap. Do not include costs of any further damage resulting from rescue or salvage efforts. Do not include the cost of intentionally jettisoned or released equipment, (described in subparagraph 305b) unless the jettison or release damages the aircraft or UAV.

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(7) Cost as new any parts acquired from salvage for repair.

b. Non-DOD Property Costing. Information about the actual cost of damage to non-DOD property shall be provided by a representative from the claims section of the nearest naval activity or a representative from the nearest naval legal service office. Use their best estimates until this information is available. Determine non-DOD property damage costs from the damage sustained as a result of the mishap and include any further damage which results from rescue or salvage efforts. The cost of environmental cleanup at the crash site is part of the mishap total cost. If the actual cost is unavailable, use the best estimate.